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Endangered Black Marsh Turtle, *Siebenrockiella crassicollis* (Gray, 1831) (Reptilia, Testudines, Geoemydidae): distribution extension and first record from Belitung Island, Indonesia

Veryl Hasan[1*], Josie South[2], Fitri Sil Valen[3], Sapto Andriyono[4]

1 Department of Aquaculture, Faculty of Fisheries and Marine, Airlangga University, Surabaya, Jawa Timur, Indonesia • veryl.hasan@fpk.unair.ac.id https://orcid.org/0000-0001-5457-9335

2 School of Biology, Faculty of Biological Sciences, University of Leeds, Leeds, UK• j.south@leeds.ac.uk https://orcid.org/0000-0002-6339-4225

3 Department of Aquaculture, Faculty of Agriculture Fisheries and Biology, Bangka Belitung University, Bangka Belitung, Indonesia • fitrisilvalen@ubb.ac.id https://orcid.org/0000-0001-8678-3752

4 Department of Marine, Faculty of Fisheries and Marine, Airlangga University, Surabaya, Jawa Timur, Indonesia • sapto.andriyono@fpk.unair.ac.id https://orcid.org/0000-0002-2566-1636

* Corresponding author

Abstract. Black Marsh Turtle, *Siebenrockiella crassicollis* (Gray, 1831), is a freshwater turtle native across Southeast Asia and is categorized as Endangered according to the IUCN Red List. We report the first record of this species from Belitung, a remote island in Indonesia, based on photographs. The new record is approximately 200 km to the east of the nearest locality in Sumatra, and 250 km to the west of the nearest locality in Borneo.

Keywords. Biogeography, ecology, swamp, freshwater turtle, wetland

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Introduction

Asian freshwater turtles are at risk from anthropogenic pressures, including unsustainable harvesting for the international pet trade, food, traditional medicine, displays, clothing, and even as household items (Gong et al. 2009; Cheung and Dudgeon 2006). Wildlife trade is a key economic aspect throughout Southeast Asia, and freshwater turtles are suffering massive regional population declines as a result (Tartusi et al. 2020). This is compounded by their generally rate of slow reproduction and loss of key habitat (Gong et al. 2009; Cheung and Dudgeon 2006).

Black Marsh Turtle, *Siebenrockiella crassicollis* (Gray, 1831), is an Endangered species distributed across Southeast Asia. It is among the most in demand freshwater turtles in the international ornamental market, as it has cultural and religious significance in Buddhism (Roth et al. 1997; Tartusi et al. 2020; Horne et al. 2021). *Siebenrockiella crassicollis* is a small to medium-sized turtle, with a carapace length averaging 17–20 cm (de Rooij 1915; Ernst and Barbour 1989). This species typically inhabits slow-flowing, shallow water bodies in freshwater-marsh habitats. *Siebenrockiella crassicollis* is primarily an underwater predator, which feeds on invertebrates and small fish, although it will occasionally scavenge rotting plants, fruits, or carcasses of larger animals that fall into the water. Juveniles are typically more carnivorous than adults.

Deforestation, pollution, and urban expansion has caused habitat loss across the species' range. In addition, *S. crassicollis* is often trapped in slow-flowing stream habitats (Horne et al. 2021). It is often accidentally caught because its habitat includes fishing grounds. Like most freshwater turtles, *S. crassicollis* has a slow reproductive cycle and requires years to reach

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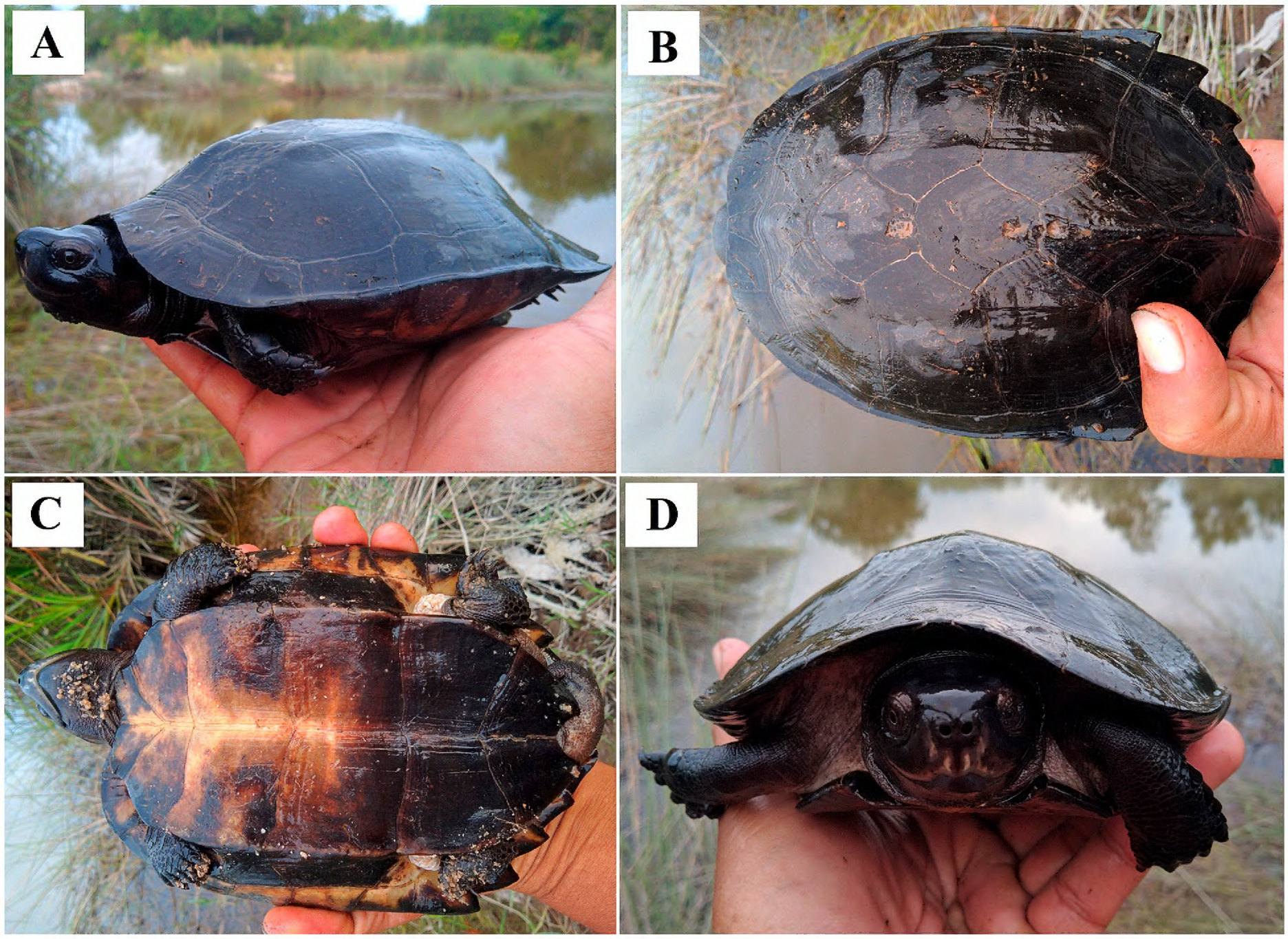

Figure 1. *Siebenrockiella crassicollis* (AMNHP0007) from Cerucuk River, Belitung District, Belitung Island, Indonesia. **A.** Lateral view. **B.** Dorsal view of carapace. **C.** View of plastron. **D.** Anterior view (photographs by **F.** Yusnadar).

maturity. Due to the combination of these factors, *S. crassicollis* is considered an Endangered in accordance to the IUCN Red List (Horne et al. 2021).

The global distribution of this species includes southern Myanmar, the Khorat Plateau of Thailand, Cambodia, southern Vietnam, western Sarawak, Malaysia, southern Kalimantan, Indonesia, Peninsular Malaysia, and several other parts of Indonesia such as Sumatra and Western Java (Iskandar 2000; Horne et al. 2021). During a recent field expedition, photographic evidence of *S. crassicollis* was recorded from Belitung Island, a remote island in Karimata Strait, between Sumatra and Borneo, Indonesia.

Methods

A live specimen of *Siebenrockiella crassicollis* (Fig. 1) was obtained from local fishermen during fieldwork carried out on 1 May 2023 in the Cerucuk River (02°47′ 20″S, 107°40′02″E), Tanjung Pandan Sub-District, Belitung District, Bangka Belitung Province, Indonesia (Fig. 2). The collection site is in a riparian zone, characterized by wide shallow ponds and abundant vegetation (Fig. 3). The topography is 30 m above sea level. This area is outside the management of Protected Forest of Bangka Belitung Province. Although the area is not part of a protected forest, collection of endangered species is prohibited, unless special permits are obtained. Because we did not have a permit to collect *S. crassicollis* during our fieldwork, no voucher specimens were retained. The turtle was photographed, measured using ruler, and examined in detail following Gray (1855) and de Rooij (1915) to determine its identification, then released at point of capture. The photographs were deposited at Airlangga Museum Natural History (AMNHP), Airlangga University, Indonesia.

Figure 2. Riparian zone, midstream of Cerucuk River, location where *Siebenrockiella crassicollis* was found in Belitung Island, Indonesia (photograph by **F.** Yusnandar).

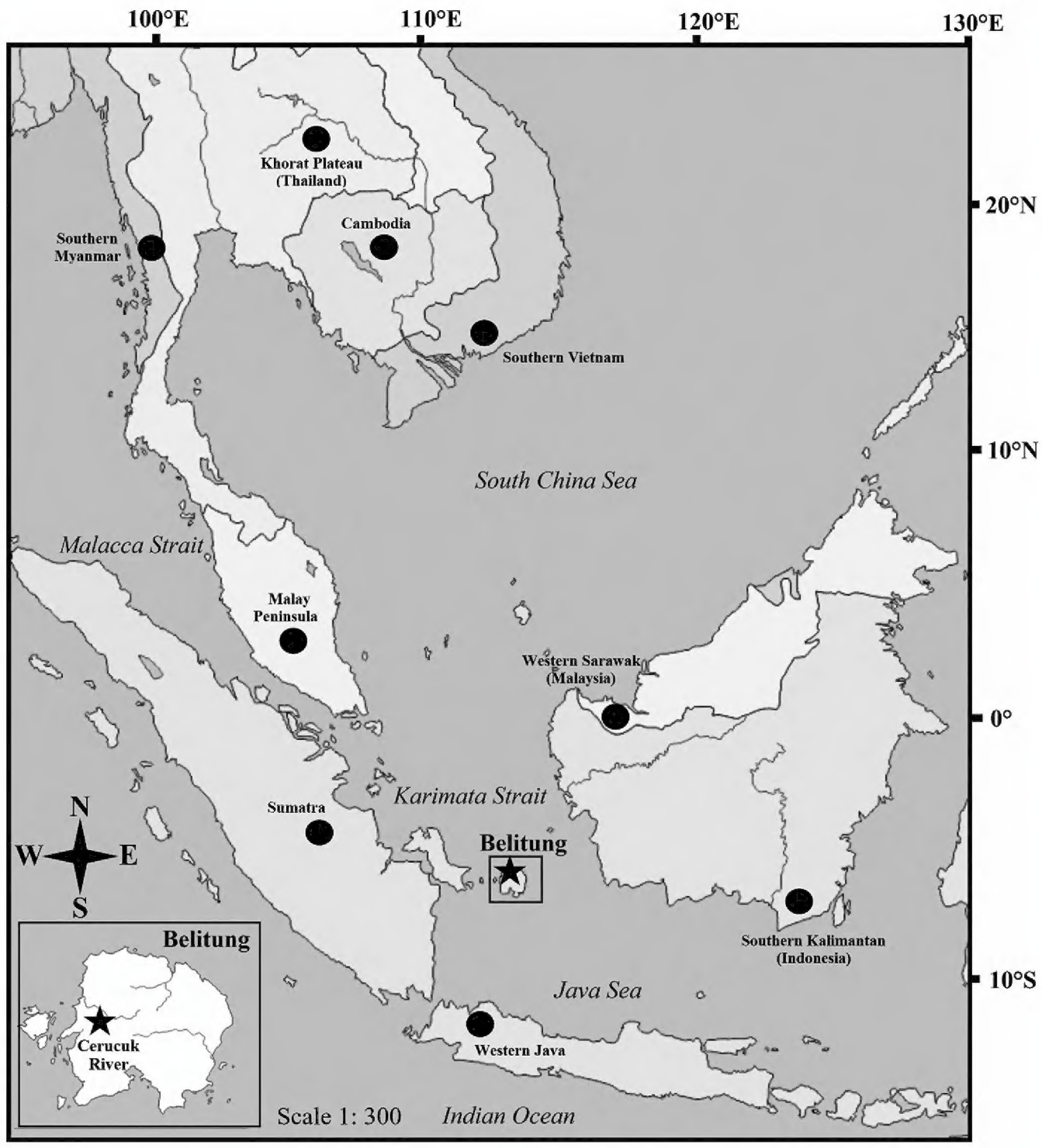

Figure 3. Distribution map of *Siebenrockiella crassicollis*. The star indicates the new record from Belitung Island, Indonesia. The circles in Southern Myanmar, Khorat Plateau, Cambodia, southern Vietnam, western Sarawak, southern Kalimantan, Peninsular Malaysia, and Sumatra and western Java indicate previous records based on Iskandar (2000) and Horne et al. (2021).

Results

Siebenrockiella crassicollis (Gray, 1831)

Figure 1; Table 1

New records. INDONESIA – **Belitung Island** • Belitung District, midstream of the Cerucuk River; 02°47′20″S, 107°40′02″E, I.V.2023; V. Hasan obs.; in turtle trap; 1 adult, ♀; individual photographed but not collected. Photos are in the collection of AMNHP, catalogue number AMNHF0007.

Identification. The specimen observed in the Cerucuk River was identified as an adult female *S. crassicollis* (Fig. 1) based on characters proposed by Gray (1855) and de Rooij (1915). Carapace slightly depressed with three keels; vertebral plates elongate, 6-sided; posterior margin serrated; nuchal small, increasing in width posteriorly; length of first vertebral less than half its width; second to fifth vertebrals as long as broad. Plastron not hinged and with a shallow, half-oval-shaped notch in the pair of anal scutes. Head large, covered with smooth skin and small shields posteriorly; neck thick; snout short. Coloration in life: carapace black dorsally, with yellow markings on ventral side of marginals; plastron with yellow bands along sutures anteriorly; soft parts black with large yellow spots on head.

Table 1. Morphometric measurements of *Siebenrockiella crassicollis* (AMNHP0007) from Belitung Island, Indonesia.

Characters	Measurements (mm)
Carapace Arch Length	198
Carapace Arch Width	167
Plastron Curve Length	155
Plastron Curve Width	86
Head Length	48
Tail Length	35

Measurements of the *S. crassicollis* from Belitung Island are provided in Table 1.

Discussion

The discovery of *Siebenrockiella crassicollis* in the Cerucuk River (Fig. 2), Belitung District is the first official record of this species for Belitung Island. It represents a range extension of approximately 200 km to the east of the nearest locality in Sumatra and 250 km to the west of the nearest locality in Borneo (Fig. 3). The presence of multiple populations across a fragmented distribution suggests that the conservation status for *S.*

crassicollis should be reassessed and further research be conducted to determine population abundance and distribution across Belitung Island. The Cerucuk River is overgrown with many aquatic plants, providing ideal habitat for *S. crassicollis* (Ernst and Barbour 1989; Iskandar 2000). The status of the population on Belitung should be determined to establish a baseline for future monitoring and conservation.

It is essential that up-to-date population distribution assessments are carried out to across understudied freshwater systems of Southeast Asia. Particularly as the Endangered IUCN status is based on the known populations and ranges of *S. crassicollis*. Conservation initiatives would greatly benefit f rom b etter k nowledge on the full range and distribution of this species, including molecular data in order to understand population dynamics within restricted populations. Using freshwater turtle distributions across the Indonesian archipelago would inform more tailored conservation initiatives which account for complex island biogeography (Kusumah et al. 2023; Hasan and South 2023).

Confirming and updating new records of Endangered freshwater turtles is essential as there has been a broad decline of the genera in Asia (Nguyen et al. 2018; Hasan and South 2023). There is limited ecological information available for *S. crassicollis,* and what is available is piecemeal and general. Better knowledge on habitat requirements and population dynamics is needed to develop policy and legislation to protect this species from threats (Ernst and Barbour 1989; Tartusi et al. 2020). Furthermore, trade and capture of *S. crassicollis* is prohibited in Singapore, Myanmar, and Vietnam, but there are no such restrictions in Indonesia, which allows a yearly capture of 500 individuals in South Sumatra, whereas Central Borneo has no quota (Fauzi et al. 2020). Better data is needed to create policy which conserves but also acknowledges the cultural and economic significance of *S. crassicollis* and other freshwater turtles in Indonesia.

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Author Contributions

Conceptualization: VH, JS. Data curation: JS, VH, FSL, SA. Formal analysis: VH. Funding acquisition: VH. Investigation: VH. Methodology: JS, VH. Project administration: VH. Validation: JS. Visualization: VH, JS. Writing – original draft: VH. Writing – review and editing: JS, FSL, SA.

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